

General

Title

Heart failure: percent of patients with LVSD who are prescribed an ACEI or ARB at hospital discharge.

Source(s)

Specifications manual for national hospital inpatient quality measures, version 3.1a. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2010 Apr 1. various p.

Measure Domain

Primary Measure Domain

Process

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percent of heart failure patients with left ventricular systolic dysfunction (LVSD) who are prescribed an angiotensin converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) at hospital discharge. For purposes of this measure, LVSD is defined as chart documentation of a left ventricular ejection fraction (LVEF) less than 40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction.

Rationale

Angiotensin converting enzyme inhibitors (ACEI) reduce mortality and morbidity in patients with heart failure and left ventricular systolic dysfunction (The SOLVD Investigators, 1991 and CONSENSUS Trial Study Group, 1987) and are effective in a wide range of patients (Masoudi, 2004). Clinical trials have also

established angiotensin receptor blocker (ARB) therapy as an acceptable alternative to ACEI, especially in patients who are ACEI intolerant (Granger, 2003 and Pfeffer, 2003). National guidelines strongly recommend ACEIs for patients hospitalized with heart failure (Jessup, 2009 and HFSA, 2006). Guideline committees have also supported the inclusion of ARBs in performance measures for heart failure (Executive Council of the Heart Failure Society of America, 2004).

Primary Clinical Component

Heart failure; left ventricular systolic dysfunction (LVSD); angiotensin converting enzyme inhibitor (ACEI); angiotensin receptor blocker (ARB)

Denominator Description

Heart failure patients with left ventricular systolic dysfunction (LVSD) (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Heart failure patients who are prescribed an angiotensin converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) at hospital discharge

Evidence Supporting the Measure

Evidence Supporting the Criterion of Quality

A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Evidence Supporting Need for the Measure

Need for the Measure

Use of this measure to improve performance

Evidence Supporting Need for the Measure

Bonow RO, Bennett S, Casey DE Jr, Ganiats TG, Hlatky MA, Konstam MA, Lambrew CT, Normand SL, Pina IL, Radford MJ, Smith AL, Stevenson LW, Bonow RO, Bennett SJ, Burke G, Eagle KA, Krumholz HM, Lambrew CT, Linderbaum J, Masoudi FA, Normand SL, Ritchie JL, Rumsfeld JS, Spertus JA, American College of Cardiology, American Heart Association Task Force on Performance Measures (Writing Committee), Heart Failure Society of America. ACC/AHA clinical performance measures for adults with chronic heart failure. J Am Coll Cardiol. 2005 Sep 20;46(6):1144-78. [PubMed](#)

CONSENSUS Trial Study Group. Effects of enalapril on mortality in severe congestive heart failure. Results of the Cooperative North Scandinavian Enalapril Survival Study (CONSENSUS). N Engl J Med. 1987 Jun 4;316(23):1429-35. [PubMed](#)

Executive Council of the Heart Failure Society of America. Implications of recent clinical trials for heart failure performance measures. J Card Fail. 2004 Feb;10(1):4-5. [PubMed](#)

Granger CB, McMurray JJ, Yusuf S, Held P, Michelson EL, Olofsson B, Ostergren J, Pfeffer MA, Swedberg K. Effects of candesartan in patients with chronic heart failure and reduced left-ventricular systolic function intolerant to angiotensin-converting-enzyme inhibitors: the CHARM-Alternative trial. Lancet. 2003 Sep 6;362(9386):772-6. [PubMed](#)

Heart Failure Society of America. HFSA 2006 comprehensive heart failure practice guideline. J Card Fail. 2006 Feb 1;12(1):e1-2. [PubMed](#)

Hunt SA, Abraham WT, Chin MH, Feldman AM, Francis GS, Ganiats TG, Jessup M, Konstam MA, Mancini DM, Michl K, Oates JA, Rahko PS, Silver MA, Stevenson LW, Yancy CW, American College of Cardiology Foundation, American Heart Association. 2009 focused update incorporated into the ACC/AHA 2005 guidelines for the diagnosis and management of heart failure in adults [trunc]. J Am Coll Cardiol. 2009 Apr 14;53(15):e1-e90. [810 references] [PubMed](#)

Masoudi FA, Rathore SS, Wang Y, Havranek EP, Curtis JP, Foody JM, Krumholz HM. National patterns of use and effectiveness of angiotensin-converting enzyme inhibitors in older patients with heart failure and left ventricular systolic dysfunction. Circulation. 2004 Aug 10;110(6):724-31. [PubMed](#)

Pfeffer MA, McMurray JJ, Velazquez EJ, Rouleau JL, Kober L, Maggioni AP, Solomon SD, Swedberg K, Van de Werf F, White H, Leimberger JD, Henis M, Edwards S, Zelenkofske S, Sellers MA, Califf RM. Valsartan, captopril, or both in myocardial infarction complicated by heart failure, left ventricular dysfunction, or both. N Engl J Med. 2003 Nov 13;349(20):1893-906. [PubMed](#)

SOLVD Investigators. Effect of enalapril on survival in patients with reduced left ventricular ejection fractions and congestive heart failure. N Engl J Med. 1991 Aug 1;325(5):293-302. [PubMed](#)

State of Use of the Measure

State of Use

Current routine use

Current Use

Accreditation

Collaborative inter-organizational quality improvement

External oversight/Medicaid

External oversight/Medicare

Internal quality improvement

National reporting

Pay-for-performance

Application of Measure in its Current Use

Care Setting

Hospitals

Professionals Responsible for Health Care

Measure is not provider specific

Lowest Level of Health Care Delivery Addressed

Single Health Care Delivery Organizations

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

Stratification by Vulnerable Populations

Unspecified

Characteristics of the Primary Clinical Component

Incidence/Prevalence

- Around 5 million people in the United States have heart failure. About 550,000 new cases are diagnosed each year. More than 287,000 people in the United States die each year with heart failure.
- Hospitalizations for heart failure have increased substantially. They rose from 402,000 in 1979 to 1,101,000 in 2004. (National Hospital Discharge Survey)
- Heart failure is the most common reason for hospitalization among people on Medicare. Hospitalizations for heart failure are higher in black than white people on Medicare.
- Persons living with heart failure can improve their quality of life and outcomes by the following:
 - Taking prescribed medications as recommended each day.
 - Reducing their dietary intake of salt (sodium).
 - Getting daily physical activity as recommended by their health provider.
 - Being aware of and telling their health provider about their heart failure symptoms.
 - Taking and keeping track of their weight every day to check fluid buildup in the body and telling their health provider of changes in weight over a short time.
 - Learning ways to deal with depression and stress and get treatment if needed.
 - Making living wills to state their wishes for care to health care providers and their family members.

Evidence for Incidence/Prevalence

American Heart Association. Heart disease and stroke facts, 2006 update. Dallas (TX): AHA; 2006.

Centers for Disease Control and Prevention. The burden of heart disease and stroke in the United States: state and national data, 1999. Atlanta (GA): Centers for Disease Control and Prevention; 2004.

Elixhauser A, Yu K, Steiner C, Bierman AS. Table 4. Most common reasons for hospitalizations by age groups. In: Hospitalization in the United States, 1997. HCUP fact book (AHRQ Publication No. 00-0031). Rockville (MD): Agency for Healthcare Research and Quality; 2000.

Grady KL, Dracup K, Kennedy G, Moser DK, Piano M, Stevenson LW, Young JB. Team management of patients with heart failure: A statement for healthcare professionals from The Cardiovascular Nursing Council of the American Heart Association. Circulation. 2000 Nov 7;102(19):2443-56. [PubMed](#)

National Heart, Lung, and Blood Institute. Diseases and conditions index, heart failure. [internet]. Bethesda (MD): National Heart, Lung, and Blood Institute; 2007 Dec [accessed 2008 Nov 17].

Association with Vulnerable Populations

See the "Incidence/Prevalence" field.

Burden of Illness

See the "Incidence/Prevalence" field.

Utilization

See the "Incidence/Prevalence" field.

Costs

The estimated direct cost for heart failure in 2006 was \$29.6 billion in the United States.

Evidence for Costs

American Heart Association. Heart disease and stroke facts, 2006 update. Dallas (TX): AHA; 2006.

Institute of Medicine (IOM) Healthcare Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding

Users of care only

Description of Case Finding

Discharges, 18 years of age and older, with a principal diagnosis of heart failure with left ventricular systolic dysfunction (LVSD)

Denominator Sampling Frame

Patients associated with provider

Denominator Inclusions/Exclusions

Inclusions

Discharges, 18 years of age and older, with an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Principal Diagnosis Code for heart failure as defined in Appendix A, Table 2.1, of the original measure documentation *and* chart documentation of a left ventricular ejection fraction (LVEF) less than 40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction

Exclusions

Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code for LVAD and heart transplant as defined in Appendix A, Table 2.2)

Patients less than 18 years of age

Patients who have a Length of Stay greater than 120 days

Patients enrolled in clinical trials

Patients discharged/transferred to another hospital for inpatient care

Patients who left against medical advice or discontinued care

Patients who expired

Patients discharged/transferred to a federal health care facility

Patients discharged/transferred to hospice

Patients with *Comfort Measures Only* documented

Patients with a documented *Reason for No Angiotensin Converting Enzyme Inhibitor (ACEI) and No Angiotensin Receptor Blocker (ARB) at Discharge*

Relationship of Denominator to Numerator

All cases in the denominator are equally eligible to appear in the numerator

Denominator (Index) Event

Clinical Condition

Institutionalization

Denominator Time Window

Time window brackets index event

Numerator Inclusions/Exclusions

Inclusions

Heart failure patients who are prescribed an angiotensin converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) at hospital discharge

Exclusions

None

Measure Results Under Control of Health Care Professionals, Organizations and/or Policymakers

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

Numerator Time Window

Institutionalization

Data Source

Administrative data

Medical record

Level of Determination of Quality

Individual Case

Pre-existing Instrument Used

Unspecified

Computation of the Measure

Scoring

Rate

Interpretation of Score

Better quality is associated with a higher score

Allowance for Patient Factors

Unspecified

Standard of Comparison

External comparison at a point in time

External comparison of time trends

Internal time comparison

Evaluation of Measure Properties

Extent of Measure Testing

The core measure pilot project was a collaboration among The Joint Commission, five state hospitals associations, five measurement systems, and 83 hospitals from across nine states. Participating hospitals collected and reported data for heart failure (HF) measures from December 2000 to December 2001.

Reliability visits were completed the summer of 2001 at a random sample of 16 participating hospitals across 6 states.

Preliminary data from the pilot project shows a mean measure rate of 86% indicating some opportunity for improvement.

Evidence for Reliability/Validity Testing

The Joint Commission. A comprehensive review of development and testing for national implementation of hospital core measures. Oakbrook Terrace (IL): The Joint Commission; 40 p.

Identifying Information

Original Title

HF-3: ACEI or ARB for LVSD.

Measure Collection Name

National Hospital Inpatient Quality Measures

Measure Set Name

Heart Failure

Submitter

Centers for Medicare & Medicaid Services - Federal Government Agency [U.S.]

The Joint Commission - Health Care Accreditation Organization

Developer

Centers for Medicare & Medicaid Services/The Joint Commission - None

Funding Source(s)

All external funding for measure development has been received and used in full compliance with The Joint Commission's Corporate Sponsorship policies, which are available upon written request to The Joint Commission.

Centers for Medicare & Medicaid Services (CMS) funding is from the United States Government.

Composition of the Group that Developed the Measure

Unspecified

Financial Disclosures/Other Potential Conflicts of Interest

Expert panel members have made full disclosure of relevant financial and conflict of interest information in accordance with the Conflict of Interest policies, copies of which are available upon written request to The Joint Commission and the Centers for Medicare & Medicaid Services.

Endorser

National Quality Forum - None

Included in

Hospital Compare

Hospital Quality Alliance

National Healthcare Disparities Report (NHDR)

National Healthcare Quality Report (NHQR)

Adaptation

Measure was not adapted from another source.

Release Date

2000 Aug

Revision Date

2010 Apr

Measure Status

This is the current release of the measure.

This measure updates a previous version: Specifications manual for national hospital quality measures, version 3.0b. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2009 Oct. various p.

Source(s)

Specifications manual for national hospital inpatient quality measures, version 3.1a. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2010 Apr 1. various p.

Measure Availability

The individual measure, "HF-3: ACEI or ARB for LVSD," is published in the "Specifications Manual for National Hospital Inpatient Quality Measures." This document is available from [The Joint Commission Web site](#) . Information is also available from the [QualityNet Web site](#) . Check The Joint Commission Web site and QualityNet Web site regularly for the most recent version of the specifications manual and for the applicable dates of discharge.

Companion Documents

The following are available:

A software application designed for the collection and analysis of quality improvement data, the CMS Abstraction and Reporting Tool (CART), is available from the [CMS CART Web site](#) . Supporting documentation is also available. For more information, e-mail CMS PROINQUIRIES at proinquiries@cms.hhs.gov.

The Joint Commission. A comprehensive review of development and testing for national implementation of hospital core measures. Oakbrook Terrace (IL): The Joint Commission; 40 p. This document is available in Portable Document Format (PDF) from [The Joint Commission Web site](#) .

The Joint Commission. Attributes of core performance measures and associated evaluation criteria. Oakbrook Terrace (IL): The Joint Commission; 5 p. This document is available in PDF from [The Joint Commission Web site](#) .

Hospital compare: a quality tool provided by Medicare. [internet]. Washington (DC): U.S. Department of Health and Human Services; 2010 May 25; [accessed 2010 Aug 17]. This is available from the [Medicare Web site](#). See the related [QualityTools](#) summary.

NQMC Status

This NQMC summary was completed by ECRI on February 7, 2003, October 11, 2005, April 6, 2007, and October 26, 2007. The Joint Commission informed NQMC that this measure was updated on August 13, 2008 and provided an updated version of the NQMC summary. This NQMC summary was updated accordingly by ECRI Institute on November 11, 2008. The information was verified by the Centers for Medicare & Medicaid Services (CMS) on January 22, 2009. The Joint Commission informed NQMC that this measure was updated again on May 19, 2009 and provided an updated version of the NQMC summary. This NQMC summary was updated accordingly by ECRI Institute on October 9, 2009. The information was verified by CMS on February 18, 2010. The Joint Commission informed NQMC that this measure was updated again on October 4, 2010 and provided an updated version of the NQMC summary. This NQMC summary was updated accordingly by ECRI Institute on October 25, 2010. The information was not verified by CMS.

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